AMENDMENTS TO THE CLAIMS

Please replace the pending claims with the following claim listing:

1. **(Currently Amended)** A semiconductor laser comprising:

a gain region having wavelength selectivity;

a propagating region optically coupled to said gain region, the propagating region having a length, the propagating region also having an effective refractive index whose temperature dependence differs from that of said gain region, and having no wavelength selectivity; and

a reflection region for reflecting light propagated through said propagating region with high reflectivity,

wherein said gain region comprises a diffraction grating formed by periodic perturbation with at least one of real and imaginary parts of a complex refractive index and the coupling coefficient of the diffraction grating of said gain region is greater than 300 cm^{-1}, so that said gain region and said reflection region form a cavity for laser oscillation ~~with~~ within an extended stop bandwidth, the cavity having an effective length, the wavelength of the laser oscillation being determined by an optical phase determined by the effective cavity length and the length of the propagation region while a center wavelength of the stop band changes over temperature due to temperature dependence of the effective refractive index of the gain region.

2. **(Currently Amended)** A semiconductor laser comprising:

a gain region having wavelength selectivity;

a propagating region optically coupled to said gain region, the propagating region having a length, the propagating region also having a material other than a semiconductor with an effective refractive index whose temperature dependence differs from that of said gain region, and having no gain nor wavelength selectivity; and

a reflection region that reflects light propagated through said propagating region with high reflectivity, and has no gain,

wherein said gain region comprises a diffraction grating formed by periodic perturbation with at least one of real and imaginary parts of a complex refractive index and the coupling coefficient of the diffraction grating of said gain region is greater than 300 cm^{-1}, so that said gain region and said reflection region form a cavity for laser oscillation ~~with~~ within an extended stop bandwidth, the cavity having an effective length, the wavelength of the laser oscillation being determined by an optical phase determined by the effective cavity length and the length of the propagation region while a center wavelength of the stop band changes over temperature due to temperature dependence of the effective refractive index of the gain region.

3. **(Currently Amended)** A semiconductor laser comprising:

a gain region having wavelength selectivity;

a propagating region optically coupled to said gain region, the propagating region having a length, the propagating region also having a structure with an effective refractive index whose temperature dependence differs from that of said gain region, and having no gain nor wavelength selectivity; and

a reflection region that reflects light propagated through said propagating region with high reflectivity, and has no gain,

wherein said gain region comprises a diffraction grating formed by periodic perturbation with at least one of real and imaginary parts of a complex refractive index and the coupling coefficient of the diffraction grating of said gain region is greater than 300 cm^{-1}, so that said gain region and said reflection region form a cavity for laser oscillation ~~with~~ within an extended stop bandwidth, the cavity having an effective length, the wavelength of the laser oscillation being determined by an optical phase determined by the effective cavity length and the length of the propagation region while a center wavelength of the stop band changes over temperature due to temperature dependence of the effective refractive index of the gain region.

4. **(Previously Presented)** The semiconductor laser as claimed in claim 1, wherein said reflection region has a mirror or a diffraction grating with a periodic structure.

5. **(Currently Amended)** A semiconductor laser comprising:

a first gain region having wavelength selectivity;

a propagating region optically coupled to said first gain region, the propagating region having a length, the propagating region also having a material other than a semiconductor with an effective refractive index whose temperature dependence differs from that of said gain region, and having no gain nor wavelength selectivity; and

a second gain region optically coupled to said propagating region, and having wavelength selectivity,

wherein each of said first and second gain regions comprises a diffraction grating formed by periodic perturbation with at least one of real and imaginary parts of a complex refractive index and the coupling coefficient of the diffraction grating of said gain region is greater than 300 cm^{-1}, so that said first and second gain regions form a cavity for laser oscillation ~~with~~ within an extended stop bandwidth, the cavity having an effective length, the wavelength of the laser oscillation being determined by an optical phase determined by the effective cavity length and the length of the propagation region while a center wavelength of the stop band changes over temperature due to temperature dependence of the effective refractive index of the gain region.

6. **(Currently Amended)** A semiconductor laser comprising:

a first gain region having wavelength selectivity;

a propagating region optically coupled to said first gain region, the propagating region having a length, the propagating region also having a structure with an effective refractive index whose temperature dependence differs from that of said gain region, and having no gain nor wavelength selectivity; and

a second gain region optically coupled to said propagating region, and having wavelength selectivity,

wherein each of said first and second gain regions comprises a diffraction grating formed by periodic perturbation with at least one of real and imaginary parts of a complex refractive index and the coupling coefficient of the diffraction grating of said gain region is greater than 300 cm^{-1}, so that said first and second gain regions form a cavity for laser oscillation ~~with~~ within an extended stop bandwidth, the cavity having an effective length, the wavelength of the laser oscillation being determined by an optical phase determined by the effective cavity length and the length of the propagation region while a center wavelength of the stop band changes over temperature due to temperature dependence of the effective refractive index of the gain region.

7. **(Previously Presented)** The semiconductor laser as claimed in claim 3, wherein said structure is different from a structure of the gain region in at least one of a layer structure, layer thickness and waveguide width.

8. **(Previously Presented)** The semiconductor laser as claimed in claim 1, wherein an absolute value of a product of a length of said propagating region and a difference between a temperature differential coefficient of the effective refractive index of said gain region and a temperature differential coefficient of the effective refractive index of said propagating region is equal to or greater than 7.5×10^{-4} [μm/K].

9. **(Previously Prevented)** The semiconductor laser as claimed in claim 1, wherein said propagating region is composed of a material other than a semiconductor whose temperature differential coefficient of the effective refractive index is different from that of a semiconductor.

10. **(Previously Prevented)** The semiconductor laser as claimed in claim 1, wherein said propagating region is composed of a material other than a semiconductor whose temperature differential coefficient of the effective refractive index is negative.

11. **(Canceled)**

12. **(Previously Presented)** The semiconductor laser as claimed in claim 1, wherein the length of said propagating region is determined such that a longitudinal mode spacing determined by a sum of an effective length of the diffraction grating of said gain region and a length of said propagating region, is greater than a stop bandwidth of said diffraction grating.

13. **(Canceled)**

14. **(Previously Presented)** The semiconductor laser as claimed in claim 1, wherein said gain region, said propagating region and said reflection region are stacked.

15. **(Previously Presented)** The semiconductor laser as claimed in claim 1, wherein said gain region and said propagating region are coupled via optical path changing means.

16. **(Previously Presented)** The semiconductor laser as claimed in claim 1, wherein said propagating region has a waveguide structure having an optical confinement structure on at least one of upper and lower portions and left and right portions.

17-49. **(Canceled)**

50. **(Previously Presented)** The semiconductor laser as claimed in claim 1, wherein the stop bandwidth of the diffraction grating of said gain region is increased by setting the coupling coefficient of the diffraction grating of said gain region at least at 300 cm^{-1}.

51. **(Previously Presented)** The semiconductor laser as claimed in claim 2, wherein the stop bandwidth of the diffraction grating of said gain region is increased by setting the coupling coefficient of the diffraction grating of said gain region at least at 300 cm^{-1}.

52. **(Previously Presented)** The semiconductor laser as claimed in claim 3, wherein the stop bandwidth of the diffraction grating of said gain region is increased by setting the coupling coefficient of the diffraction grating of said gain region at least at 300 cm^{-1}.

53. **(Previously Presented)** The semiconductor laser as claimed in claim 5, wherein the stop bandwidth of the diffraction grating of said gain region is increased by setting the coupling coefficient of the diffraction grating of said gain region at least at 300 cm^{-1}.

54. **(Previously Presented)** The semiconductor laser as claimed in claim 6, wherein the stop bandwidth of the diffraction grating of said gain region is increased by setting the coupling coefficient of the diffraction grating of said gain region at least at 300 cm^{-1}.